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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Intellectual Property Law
Wadley & Patterson, P.C.
Bank of America Plaza
414 Union Street, Suite 2020
Nashville, TN 37219

EXAMINER

MILLER, DANIEL H

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 08/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/766,420

Applicant(s)

KLUG, JEREMY

Examiner

Daniel Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 13-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☒ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4/22/04.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: ____.

DETAILED ACTION

Election/Restrictions

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-12, drawn to a graphite sheet, classified in class 428, subclass 408.
- II. Claims 13-20, drawn to a process of making a graphite sheet, classified in class 427, subclass 313.

The inventions are distinct, each from the other because of the following reasons:

Inventions of Group I and Group II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the material can be made using a materially different process. Specifically, the graphite sheet, of claim 1, can be made of a non-uniform resin density after or during compression instead of before compression as claimed in claim 13. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with James Cartiglia on June 20, 2005 a provisional election was made with out traverse to prosecute the invention of graphite sheet, claims 1-12. Affirmation of this election must be made by applicant in replying to

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this Office action. Claims 13-20 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6-12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The applicant in claim 6 claims a laminate graphite sheet. It is not clear whether the applicant means to claim a graphite laminated to a substrate or a laminate of multiple graphite sheets. The examiner has interpreted the claim to be drawn to multiple graphite sheets (seepage 9 specification). Claims 7-12 are rejected as being dependent from claim 6.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Mercuri et al (U.S. 6,432,336 B1).

Regarding claims 1-4, Mercuri teaches graphite layers of laminates having anisotropic characteristics pressed together using roll pressing to make integrated sheets (column 1 background). The carbon-grouped layers appear randomly positioned in the resin (figure 2 and 2(A)), which will inherently cause a non-uniform composition. It is the examiners position that a non-uniform teaching includes both linear and non-linear. Therefore, the limitations of claim 1-4 are met.

Regarding claim 5 the graphite sheet is mechanically deformed (as in claim 10) by embossing, which can be cut to form a graphite component such as a gasket (column 3 line 15-25, and line 45-65; column 9, line 15-25, 40-50). Figure 2 and 2(A) shows a flexible graphite sheet composed of compressed particles with improved molding characteristics as above. The sheet is impregnated with resin shown to have a non-uniform distribution through out the sheet.

Claims 1-5, are rejected under 35 U.S.C. 102(b) as being anticipated by Aylsworth (U.S. 1,137,373).

Regarding claims 1-5, Aylsworth teaches a process for forming exfoliated graphite that can be molded into sheets. The exfoliated graphite that the reference refers to as “fluffy graphite” is molded with a binder to form said sheets (column 2 and 3). The graphite

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flakes of varying dimensions and binder and bonded together creating a resin impregnated graphite sheet that is of non-uniform composition. It is the position of the examiner that non-uniform includes linear and nonlinear concentrations (column 4 line 75-95). The graphite sheet having the same composition as the claimed invention and would necessarily have an improved molding characteristic as required in claim 5 (see page 2 second column).

The reference disclosed flakes of graphite compressed to make sheets of graphite (see page 3 first column) bound in a binding material where in the mass of different size particles cannot be homogeneously bound together (column 4, 5). The sheets of graphite are necessarily non-uniform, linear or non-linear because of their composition.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mercuri in view of Mercuri II (U.S. 5,192,605).

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Regarding claims 6, Mercuri teaches graphite layers of laminates having anisotropic characteristics pressed together using roll pressing to make integrated sheets (as in claim 1) or webs, papers, strips, or tapes having two major surfaces (column 1 background). The carbon-grouped layers appear randomly positioned in the resin (figure 2 and 2(A)), which will inherently cause a non-uniform (linear and non-linear) resin concentration through out the sheet).

Regarding claim 12, the graphite sheet is mechanically deformed (as in claim 10) by embossing, which can be cut to form a flexible graphite component such as a gasket (column 3 line 15-25, and line 45-65; column 9, line 15-25, 40-50). However, the reference is silent as to multiple laminated sheets of graphite as required by claim 6.

Mercuri II teaches a group of laminate material with multiple graphite sheets surrounding a core material that can comprise carbon (column 3 line 5-30). The composition is useful in sealing gaskets of an engine where the seal will be exposed to high temperatures (column 1 line 10-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Mercuri with Mercuri II because both are useful for high temperature applications.

Claims 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mercuri in view of Yoshimura (U.S. 5,017,209).

Regarding claims 6, Mercuri teaches graphite layers of laminates having anisotropic characteristics pressed together using roll pressing to make integrated

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sheets (column 1 background). The carbon-grouped layers appear randomly positioned in the resin (figure 2 and 2(A)), which will inherently cause a non-uniform (linear and non-linear) resin concentration through out the sheet. The graphite sheet is mechanically deformed by embossing, and capable of being cut to form a flexible graphite component such as a gasket (column 3 line 15-25, and line 45-65; column 9, line 15-25, 40-50). However, the reference is silent as to multiple laminated sheets of graphite as required by claim 6.

Yoshimura teaches a plurality of laminate graphite sheet layers (column 3 line 1-15). The graphite laminate sheets are used for their thermal insulating properties for a furnace (column 1 line 5-25).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Mercuri with Yoshimura because of its thermal insulating properties would be useful in a heat dissipater.

Conclusion

Cited but not relied upon is Chung (U.S. 4,946,892) that teaches composite graphite disposed in a solid matrix (abstract).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel Miller whose telephone number is (571) 272-1534. The examiner can normally be reached on M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (571) 272-1535. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Daniel Miller



DEBORAH JONES
SUPERVISORY PATENT EXAMINER